

Serial No.: New – Nat'l Phase of PCT/ JP2004/004941
Filed: Herewith

AMENDMENTS TO THE TITLE:

Please replace the title of this application with the following rewritten version:

~~COLORING~~ COLORIMETRIC SENSOR

AMENDMENTS TO THE SPECIFICATION:

Please add the following paragraph on page 1, between lines 2 and 3:

CROSS-REFERENCE TO RELATED APPLICATIONS

This U.S. National stage application claims priority under 35 U.S.C. §119(a) to Japanese Patent Application Nos. 2003-102683, filed in Japan on April 7, 2003, and 2003-352417, filed in Japan on October 10, 2003, the entire contents of which are hereby incorporated by reference.

Please replace paragraph [0007] beginning at page 3, line 1 with the following rewritten version:

[0007] ~~That is, the present invention provides:~~ (1) A first aspect of the present invention is a colorimetric sensor for detecting a particular material in the air, comprising a receptor molecule specifically binding with the particular material in the air, and a polymer molecule whose light absorbency is altered due to binding of the particular material and the receptor molecule[[:]].

Please replace paragraph [0008] beginning at page 3, line 6 with the following rewritten version:

[0008] (2) A second aspect of the present invention is the colorimetric sensor according to (1) the first aspect of the present invention, wherein said receptor molecule is linked to the polymer molecule at a portion of the receptor molecule not participating in binding with the particular material[[:]].

Please replace paragraph [0009] beginning at page 3, line 9 with the following rewritten version:

[0009] ~~(3)~~ A third aspect of the present invention is the colorimetric sensor according to (1) the first or (2) second aspect of the present invention, wherein said alteration in light absorbency of the polymer molecule is caused by a molecular structural alteration in the polymer molecule[[:]].

Please replace paragraph [0010] beginning at page 3, line 12 with the following rewritten version:

[0010] ~~(4)~~ A fourth aspect of the present invention is the colorimetric sensor according to (3) the third aspect of the present invention, wherein said polymer molecule is polydiacetylene[[:]].

Please replace paragraph [0011] beginning at page 3, line 14 with the following rewritten version:

[0011] ~~(5)~~ A fifth aspect of the present invention is the colorimetric sensor according to (1) the first or (2) second aspect of the present invention, wherein said alteration in light absorbency of the polymer molecule is caused by an alteration in an electron distribution state in the polymer molecule[[:]].

Please replace paragraph [0012] beginning at page 3, line 17 with the following rewritten version:

[0012] ~~(6)~~ A sixth aspect of the present invention is the colorimetric sensor according to (5) the fifth aspect of the present invention, further comprising a complex consisting of an electron-withdrawing material and a ligand specific for the receptor molecule, wherein said complex is linked to the receptor molecule via the ligand[[:]].

Please replace paragraph [0013] beginning at page 3, line 21 with the following rewritten version:

[0013] ~~(7)~~ A seventh aspect of the present invention is the colorimetric sensor according to ~~(5) the fifth~~ or ~~(6) sixth aspect of the present invention~~, wherein said polymer molecule is selected from a group consisting of polythiophene, oligothiophene, polypyrrole and polyvinylcarbazole[;].

Please replace paragraph [0014] beginning at page 3, line 24 with the following rewritten version:

[0014] ~~(8)~~ An eighth aspect of the present invention is the colorimetric sensor according to ~~(7) the seventh aspect of the present invention~~, wherein said polymer molecule is polyvinylcarbazole[;].

Please replace paragraph [0015] beginning at page 3, line 26 with the following rewritten version:

[0015] ~~(9)~~ A ninth aspect of the present invention is the colorimetric sensor according to any one of ~~(6) to (8) the sixth through eighth aspects of the present invention~~, wherein said ligand is selected from a group consisting of viruses, antigens and biotin[;].

Please replace paragraph [0016] beginning at page 4, line 2 with the following rewritten version:

[0016] ~~(10)~~ A tenth aspect of the present invention is the colorimetric sensor according to any one of ~~(6) to (9) the sixth through ninth aspects of the present invention~~, wherein said electron-withdrawing material is selected from a group consisting of anthraquinone, tetracyanoquinodimethane, trinitrofluorenone and dinitrofluorenone[;].

Please replace paragraph [0017] beginning at page 4, line 6 with the following rewritten version:

[0017] ~~(11)~~ An eleventh aspect of the present invention is the colorimetric sensor according to any one of ~~(1) to (10)~~ the first through tenth aspects of the present invention, wherein said receptor molecule is selected from a group consisting of sialic acid, ganglioside, antibodies, antibody fragments and avidin[[:]].

Please replace paragraph [0018] beginning at page 4, line 9 with the following rewritten version:

[0018] ~~(12)~~ A twelfth aspect of the present invention is the colorimetric sensor according to any one of ~~(1) to (11)~~ the first through eleventh aspects of the present invention, further comprising a water-retaining means[[:]].

Please replace paragraph [0019] beginning at page 4, line 11 with the following rewritten version:

[00019] ~~(13)~~ A thirteenth aspect of the present invention is the colorimetric sensor according to ~~(12)~~ the twelfth aspect of the present invention, wherein said water-retaining means is a porous material[[:]].

Please replace paragraph [0020] beginning at page 4, line 13 with the following rewritten version:

[0020] ~~(14)~~ A fourteenth aspect of the present invention is the colorimetric sensor according to ~~(13)~~ the thirteenth aspect of the present invention, wherein said porous material is selected from a group consisting of zeolite and porous sintered products[[:]].

Please replace paragraph [0021] beginning at page 4, line 16 with the following rewritten version:

[0021] ~~(15)~~ A fifteenth aspect of the present invention is the colorimetric sensor according to ~~(12)~~ the twelfth aspect of the present invention, wherein said water-retaining means is an absorbent polymer[[:]].

Please replace paragraph [0022] beginning at page 4, line 18 with the following rewritten version:

[0022] ~~(16)~~ A sixteenth aspect of the present invention is the colorimetric sensor according to ~~(15)~~ the fifteenth aspect of the present invention, wherein said absorbent polymer is selected from a group consisting of alginic acid, dextran, collagen, cellulose derivatives, starch derivatives, polyvinyl alcohol and sodium polyacrylate[;].

Please replace paragraph [0023] beginning at page 4, line 22 with the following rewritten version:

[0023] ~~(17)~~ A seventeenth aspect of the present invention is the colorimetric sensor according to ~~(16)~~ the sixteenth aspect of the present invention, wherein said cellulose derivative is selected from a group consisting of carboxymethylcellulose, methylcellulose and ethylcellulose[;].

Please replace paragraph [0024] beginning at page 4, line 25 with the following rewritten version:

[0024] ~~(18)~~ An eighteenth aspect of the present invention is the colorimetric sensor according to any one of ~~(1)~~ ~~to~~ ~~(11)~~ the first through eleventh aspects of the present invention, wherein said polymer molecule is modified so as to have a water-absorbing ability[;].

Please replace paragraph [0025] beginning at page 5, line 2 with the following rewritten version:

[0025] ~~(19)~~ A nineteenth aspect of the present invention is a filter for an air conditioner equipped with the colorimetric sensor as defined in any one of ~~(1)~~ ~~to~~ ~~(18)~~ the first through eighteenth aspects of the present invention[;].

Please replace paragraph [0026] beginning at page 5, line 4 with the following rewritten version:

[0026] ~~(20)~~ A twentieth aspect of the present invention is an apparatus for confirming a lifetime of a filter for an air conditioner, comprising a solution containing the colorimetric sensor as defined in any one of (1) to (18) the first through eighteenth aspects of the present invention, a solution bath for retaining the solution, and a means for bubbling the air before and/or after passing through the filter in the solution[;]].

Please replace paragraph [0027] beginning at page 5, line 8 with the following rewritten version:

[0027] ~~(21)~~ A twenty-first aspect of the present invention is an air conditioner equipped with the filter as defined in (19) the nineteenth aspect of the present invention[;]].

Please replace paragraph [0028] beginning at page 5, line 9 with the following rewritten version:

[0028] ~~(22)~~ A twenty-second aspect of the present invention is an air conditioner equipped with the apparatus as defined in (20) the twentieth aspect of the present invention[;]].

Please replace paragraph [0029] beginning at page 5, line 11 with the following rewritten version:

[0029] ~~(23)~~ A twenty-third aspect of the present invention is the air conditioner according to (21) the twenty-first or (22) twenty-second aspect of the present invention, wherein said colorimetric sensor is placed at an upstream and/or downstream side of the filter and is placed so as to contact with the air which has not been heat-exchanged[;]].

Please replace paragraph [0030] beginning at page 5, line 15 with the following rewritten version:

[0030] ~~(24)~~ A twenty-fourth aspect of the present invention is the air conditioner according to any one of (21) to (23) the twenty-first through twenty-third aspects of the present invention, wherein said colorimetric sensor is controlled so as to be maintained at a suitable temperature for binding with the particular material without depending upon a working state of the air conditioner[;]].

Please replace paragraph [0031] beginning at page 5, line 19 with the following rewritten version:

[0031] ~~(25)~~ A twenty-fifth aspect of the present invention is the air conditioner according to any one of ~~(21) to (24)~~ the twenty-first through twenty-fourth aspects of the present invention, further comprising an optical sensor for detecting a color change of the colorimetric sensor; ~~and.~~

Please replace paragraph [0032] beginning at page 5, line 22 with the following rewritten version:

[0032] ~~(26)~~ A twenty-sixth aspect of the present invention is a method for confirming a lifetime of a filter for an air conditioner, comprising using the colorimetric sensor as defined in any one of ~~(1) to (18)~~ the first through eighteenth aspects of the present invention.